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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,199	07/14/2005	Yves Villaret	1476-US	3001
24505	7590	05/18/2007	EXAMINER	
DANIEL J SWIRSKY			LEE, PATRICK J	
55 REUVEN ST.			ART UNIT	
BEIT SHEMESH, 99544			PAPER NUMBER	
ISRAEL			2878	
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			05/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/542,199

Applicant(s)

VILLARET, YVES

Examiner

Patrick J. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 29-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 5, 9-11, 13, 15-22, 29, 31 and 33 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 6-8, 12, 14, 30, 32 and 34-37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-22 & 29-32 in the reply filed on May 9, 2007 is acknowledged.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the examiner has cited the references on form PTO-892, they have not been considered.

Drawings

3. The drawings are objected to because Figure 9 has labels "??" that are not explained in the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to

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show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

5. Claims 1, 10, & 21 are objected to because of the following informalities:

With respect to claim 1, the elements of the claim should have indentations to be in conformance with 37 CFR § 1.75(i). In addition, claim 1 refers to a method, but there are no method steps recited.

In line 4 of claim 10, a semicolon should be disposed after "shaft".

In lines 4 & 6 of claim 21, "COGs" should read "cylindrical optical guides".

Appropriate correction is required.

6. Claims 4-5 recite the limitation "static optical mirror" in claim 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

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8. Claims 4-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 4-5, it is indefinite as to whether "pattern" refers to the pattern on the optical disk or the pattern on the mirror. If "pattern" were in reference to the pattern of the optical disk, then this would contradict with the pattern disclosed in claim 1.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claim 10 is rejected under 35 U.S.C. 102(e) as being anticipated by US 6,844,542 B2 to Kirschbaum et al.

With respect to claim 10, Kirschbaum et al disclose a crankshaft sensor element comprising: a doubled titanium shaft unit as a rotary shaft (see column 7, lines 46-48); plate (11) as a rotating optical disk centrally attached to rotary shaft and perpendicularly inclined with slotted steel plate (11a) as a light absorbing surface alternated with transparent surfaces (see figure 5b); optical fibers (15, 16) as an optical guide means facing a front side of rotating optical

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disk (11) for emitting and receiving light rays; and a mirror (see figure 5b) disposed behind the optical disk (11) distally to the optical guide means (15, 16) where the mirror is inclined in parallel to the disk (11) such that the reflective face of the mirror is facing a back side of the disk (11).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1, 9, 11, 13, 15-19, 29, 31, & 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,844,542 B2 to Kirschbaum et al.

Kirschbaum et al disclose the device as described in the discussion of claim 10.

With respect to claim 1, Kirschbaum et al disclose a crankshaft sensor element comprising: plate (11) as a rotating optical disk centrally attached to rotary shaft and perpendicularly inclined with slotted steel plate (11a) as a light absorbing surface alternated with transparent surfaces (see figure 5b); a mirror (see figure 5b) disposed behind the optical disk such that the reflective face of the mirror is facing a back side of the disk (11); and optical fibers (15, 16) as an optical guide means facing a front side of rotating optical disk (11) for emitting and receiving light rays. The arrangement is such that light emitted from fiber (15) propagates through the transparent sections of disk (11) to be incident on

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the mirror and is reflected back into the plate (11) and to the optical fiber (16). Sensor element electronic system (7) converts the light signal into information for processing. Kirschbaum et al does not explicitly disclose the mirror to be patterned. However, patterned mirrors are known in the art and would have been obvious to one of ordinary skill in the art because the use of patterns on the mirrors would prevent stray light from interfering and causing inaccuracies in the readings detected.

With respect to claim 9, the modified Kirschbaum et al disclose the device as described in the discussion of the previous claims. However, the modified Kirschbaum et al does not explicitly disclose a bundle of optical fibers such that one fiber emits light into the guide means and the others collect light. To modify the teachings of Kirschbaum et al accordingly would have been obvious to one of ordinary skill in the art because this arrangement would allow for a plurality of detectors to sense the light received from the disk (11) to obtain as accurate a measure of the position as possible.

With respect to claim 11, Kirschbaum et al disclose optical fibers (15, 16), but do not explicitly disclose a further optical fiber entering optical fibers (15, 16). To modify the teachings of Kirschbaum et al accordingly is known in the art and would have been obvious to one of ordinary skill in the art because the further optical fibers would allow for disposing the light source and emitter further away or for allowing multiplexing of optical signals.

With respect to claims 13, Kirschbaum et al disclose the device as described in the discussion of the previous claims. However, Kirschbaum et al

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does not explicitly disclose optical fibers such that one fiber emits light into the guide means and the others collect light. To modify the teachings of Kirschbaum et al accordingly would have been obvious to one of ordinary skill in the art because this arrangement would allow for a plurality of detectors to sense the light received from the disk (11) to obtain as accurate a measure of the position as possible.

With respect to claim 15, Kirschbaum et al disclose the device as described in the discussion of the previous claims. Kirschbaum et al does not explicitly disclose the mirror to be patterned. However, patterned mirrors are known in the art and would have been obvious to one of ordinary skill in the art because the use of patterns on the mirrors would prevent stray light from interfering and causing inaccuracies in the readings detected.

With respect to claim 16, Kirschbaum et al disclose the device as described in the discussion of the previous claims. Kirschbaum et al does not explicitly disclose the mirror to be patterned in the same geometrical position as the circular pattern of the disk (11). However, patterned mirrors are known in the art and would have been obvious to one of ordinary skill in the art because the use of patterns on the mirrors would prevent stray light from interfering and causing inaccuracies in the readings detected.

With respect to claim 17, Kirschbaum et al disclose the device as described in the discussion of the previous claims. Kirschbaum et al does not explicitly disclose the mirror to have two concentric circular patterns. However, patterned mirrors are known in the art and would have been obvious to one of

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ordinary skill in the art because the use of patterns on the mirrors would prevent stray light from interfering and causing inaccuracies in the readings detected.

With respect to claims 18-19, Kirschbaum et al does not explicitly disclose the use of a retro-reflective surface. However, to modify the teachings accordingly to incorporate a retro-reflective surface is known in the art for producing parallel beams of light and would have been obvious to one of ordinary skill in the art because this would increase the amount of light that goes through the disk, reflects back, and goes back through the disk for detection.

With respect to claim 29, Kirschbaum et al disclose the device as described in the discussion of the previous claims. Kirschbaum et al does not explicitly disclose the mirror to be patterned. However, patterned mirrors are known in the art and would have been obvious to one of ordinary skill in the art because the use of patterns on the mirrors would prevent stray light from interfering and causing inaccuracies in the readings detected.

With respect to claim 31, Kirschbaum et al disclose the device as described in the discussion of the previous claims. Kirschbaum et al does not explicitly disclose the mirror to be patterned. However, patterned mirrors are known in the art and would have been obvious to one of ordinary skill in the art because the use of patterns on the mirrors would prevent stray light from interfering and causing inaccuracies in the readings detected.

With respect to claim 33, the modified Kirschbaum et al disclose the device as described in the discussion of the previous claims. However, the modified Kirschbaum et al does not explicitly disclose a bundle of optical fibers

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such that one fiber emits light into the guide means and the others collect light. To modify the teachings of Kirschbaum et al accordingly would have been obvious to one of ordinary skill in the art because this arrangement would allow for a plurality of detectors to sense the light received from the disk (11) to obtain as accurate a measure of the position as possible.

13. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,844,542 B2 to Kirschbaum et al in view of US 5,981,941 to Takata et al.

Kirschbaum et al discloses the device as previously described in the discussion of claims 1, 9-11, 13, 15-19, 29, 31, & 33.

With respect to claim 20, Kirschbaum et al discloses the device as previously described. However, Kirschbaum et al does not explicitly disclose the use of a patterned static optical disk. However, static patterned optical disks are known in the art as Takata et al disclose a non-moving disk (5) with disposed patterns (9, 10) for use in an optical encoding device. To modify the teachings of Kirschbaum et al with those of Takata et al would have given the device additional sensitivity to obtain an even more accurate determination of the position.

With respect to claim 21, the modified Kirschbaum et al discloses the device as previously described. The use of additional light sources is not explicitly disclosed, but the use of multiple light sources is known in the art and would have been obvious to one of ordinary skill in the art as mere duplication of

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parts because the additional light sources would allow for production of a light signal strong enough to go through the plate and return.

With respect to claim 22, the modified Kirschbaum et al discloses the device as previously described. However, the modified Kirschbaum et al does not explicitly disclose the rotating disk to be attached to the surface of the plain mirror. To modify the teachings of Kirschbaum et al is known in the art and would have been obvious to one of ordinary skill in the art because this would allow for a decrease in the size of the device and lead to lower production costs.

Allowable Subject Matter

14. Claims 2-3, 6-8, 12, 14, 30, 32, & 34-37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 2-3, 12, 14, & 34-35, the prior art of record does not disclose nor suggest the optical guide to have a transparent peripheral wall designed to confine the light rays such that the terminal peripheral rim emits a circle of light. As a result, claims 2-3, 12, 14, & 34-35 and dependent claims 6-7, 30, 32, & 36-37 are allowable over the prior art.

Conclusion

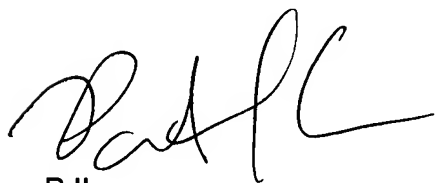
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Lee whose telephone number is

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(571) 272-2440. The examiner can normally be reached on Monday through Friday, 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



PJL
May 15, 2007

Patrick J. Lee
Examiner
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